

9 Operation And Maintenance

General

A wide variety of local, state and national agencies have built bicycle facilities. These facilities may be trails located on independent rights-of-way or they may be on-road bicycle lanes, signed bicycle routes, wide shared traffic lanes or well-marked shoulder areas.

The agencies responsible for the control, maintenance and policing of bicycle facilities should be identified prior to construction. The costs involved with the operation and maintenance should be considered and budgeted for when planning a facility.

In general, the methods used for roadway repair and maintenance should be observed. Neglected maintenance will render bicycle facilities unridable, and the facilities will become a liability to the agency responsible. In addition, future repaving must be planned as the facilities age. Bicyclists should be encouraged to report bicycle paths and roadways needing maintenance. A central contact person with authority to authorize maintenance work should be designated to receive such reports.

Planning and budgeting: The growth of bicycle facility mileage should be carefully watched to assure that funding is commensurate with maintenance and operational responsibilities. While the special maintenance needs of on-road facilities are a relatively small part of the overall road maintenance budget, this is not the case with bicycle paths.

Budgets for path-side maintenance should include materials for planting, spraying, mulching, watering, fertilizing, pruning, selective clearing, etc.; equipment for mowing, irrigating, spraying, cultivating, hauling, etc; and skilled personnel. Costs can vary considerably from year to year depending upon increases in the number of miles of new bicycle paths and changes in maintenance practices and standards.

Improvements in maintenance effectiveness and lower costs which can be achieved by the application of new methods should merit study. Budgets should also include adequate supplies and services for rest areas.

Maintenance requirements and budgets for newly landscaped areas should be developed with the cooperation of the landscape designer, horticulturist or agronomist.

Standards of care: Standards of care for bicycle paths may ultimately be determined by the courts. As the views of the court may change with circumstances, maintenance managers should be aware of the latest court rulings. It can be expected that the standard of care may be high because of the vulnerability of bicyclists to accidents.

On-road facilities

Bikeways and roadways with bicycle traffic are often susceptible to having debris, such as glass or sand, accumulate in the area near the right edge where most bicyclists ride. Therefore, regular sweeping is necessary. A smooth surface, free of potholes and debris, should be provided. The pavement edges should be uniform. Highways with bicycle traffic may require a more frequent and a higher level of maintenance than other highways.

Special bicycle signs and markings should be routinely inspected and kept in good condition. Markings should be kept prominent.

The routine maintenance of roadways provides an excellent opportunity to improve the bicycle travel on those roads. Several bicycle facilities described in this guide can be implemented during routine maintenance activities. When lane markings for four- or six-lane streets are restriped, consideration can be given to adjusting the lane widths and providing a wide curb lane for bicycles (see the section entitled Wide Outside Lanes on page 26). The addition of edge lines can better delineate a shoulder, especially at night. When shoulders are resurfaced, a smooth surface suitable for bicycle riding should be considered.

Bicycle paths

For bicycle paths built in conformance with design standards, the agency responsible for maintenance should seek to maintain those standards. If standards are not prescribed,



A commitment to maintenance for bicyclists involves paying particular attention to debris and road surface conditions at the right edge of the roadway.

they should consider improvements that are within their capability and which will improve the facility's safety and operation. Trail widening, curve improvements, drainage improvements, addition of dividers, or curbs should be considered as appropriate maintenance functions on paths constructed without design standards.

Use of paths will be considerably influenced by weather. Good weather will cause high use rates. Bad weather will cause many recreational paths to be little used or even closed. Paths used by commuters may require special consideration. Puddles, ice and snow may become maintenance problems if commuter paths will operate year round.

Inspection: The condition of bicycle paths is more directly associated with public recreation and enjoyment than the condition of roadways. Maintenance requirements should be evaluated from the standpoint of the user.

Signs and traffic markings: Signs, especially warning or regulatory signs, and markings should be routinely inspected and kept in good condition. Center line marking on the path should be kept prominent.

Part IX of the MUTCD, reproduced in Appendix 4, prescribes the proper signs and markings for bicycle paths.

Visibility:

Illumination: Need for proper lighting of bicycle paths will usually vary according to the amount of vehicle traffic and the particular hazards an area presents. Roadway intersections are prime candidates for lighting improvements and, once installed, the lights should be maintained not only to ensure reliable operation, but also provide the desired luminance.

Sight distance and clearance: Sight distances on parallel roadways and paths should not be impaired leading up to crossings and curves.

Trees, shrubs and tall grass should be regularly inspected and either removed or trimmed if they can interfere. Sight distance requirements will vary with potential bicycle speeds. Adequate clearances on both sides and overhead should be checked regularly.

Tree branches should be trimmed to allow enough room for seasonal growth without encroaching onto the trail. Seeded and sodded areas in the vicinity of bicycle paths should have a regular schedule of mowing.

Surface repair: Patching and grading of paths should be much less demanding than similar roadway operations. Hand operated equipment should be adequate to make repairs in most cases. It is more important, however, that finished patches be flush with the surface of the path. Skid resistance of the surface should be the same as the adjoining path's surface.

Presence of ruts should indicate an improperly designed or constructed trail, or that use has not been limited to bicycles. Ruts should be removed by whatever measures are appropriate to give a satisfactory result and avoid recurrence. Attention should be given to maintaining the full paved width and not allowing the edges to ravel.

Drainage: Paths constructed across irregular or hilly land usually will encounter drainage problems. Seasonal washouts, silt or gravel washes across a path, or sinking should be watched for and appropriate measures taken. Installation of culverts or building small bridges could be considered a maintenance function to achieve an immediate result and avoid the expense of contracting.

Drainage grates should not have parallel openings that could catch narrow bicycle tires. Maintenance personnel should be especially instructed to assure that grates are positioned so that openings are at angles to the trail's direction.

Cleaning:

Sweeping and cleaning: The responsibility to maintain bicycle paths could present problems for cleanliness not ordinarily associated with motor vehicle travel. The tires of a bicycle can be easily damaged by broken glass and

other sharp objects. Bicycle wheels slip easily on leaves or ice. Small solid objects such as loose gravel or sticks on an asphalt surface can cause a serious fall. There also should be concern when mechanically sweeping roadways that material is not thrown onto a bicycle path. Path-side materials such as bark or gravel may ravel and necessitate frequent sweeping.

Trash pick-up: Trash receptacles should be located with at least two functions in mind: where they will be needed in relation to use and where they can be easily available for pickup and emptying. Rest areas for bicyclists are the most logical locations for trash barrels.

Litter control: Paths are often subject to less littering than roadways, and the debris tends not to be of the same kind (e.g., few abandoned cars or dead animals). However, special attention is focused on the path-side appearance due to the more leisurely pace of traffic on trails. Paths should be kept free of litter and debris to maintain the path in a neat, clean and attractive manner.

Trash and rubbish deposited on or along the path should be picked up and disposed of periodically as necessary. Generally, path-sides should be given a thorough cleanup in the spring and periodically as needed thereafter. Debris, such as fallen branches, or rock or earth slides, should be removed from the path and ditches immediately after they are observed or reported. Citizen or civic group participation in clean-up efforts on trails should be encouraged.

Fencing: Fencing along paths should be maintained in the same manner as highway fencing.

Structural deterioration: Structures should be inspected annually to ensure they are in good condition. Special attention should be given to wood foundations and posts to determine whether rot or termites are present.

Special facilities: Steps and ramps on bicycle paths should be maintained at a level that will accommodate the type of use associated with the trail. Ramps for wheelchairs should be kept in good condition, and graded areas should receive adequate attention.

Enforcement: Special attention to law enforcement may be necessary. In some cases, unauthorized motor vehicles may routinely use a bicycle path, causing danger for users and potential damage for the path itself. In addition, the potential for crimes of violence on isolated paths should be carefully evaluated and monitored. It may be necessary to implement a routine path patrol.